REMARKS

Claims 19-33, 35-39 and 43 currently appear in this application. The Office Action of December 22, 2004, has been carefully studied. These claims define novel and unobvious subject matter under Sections 102 and 103 of 35 U.S.C., and therefore should be allowed. Applicants respectfully request favorable reconsideration, entry of the present amendment, and formal allowance of the claims.

Allowed Claims

Claims 19-33 are allowed.

Rejections under 35 U.S.C. 112

Claims 34-39 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for detection of probes which comprise the pH or potential sensitive fluorophore attached to a steroid, to a head group of a sphingolipid or the head group of a lipid having two 14 carbon chains, which probes interact with a lipid layer, is said not to reasonably provide enablement for any pH or potential-sensitive fluorophore linked to a charged polymer without other structural information which interacts with any surface whatsoever.

This rejection is respectfully traversed. The present invention is directed to using a polymer to which is covalently bound a fluorophore that exhibits a change in an observable property that is pH-or potential-sensitive. Thus, if a test species is brought into contact with the fluorophore-incorporated surface, any observable change in the fluorophore will indicate binding of the test species to the surface. New claim 43 is submitted in order to more clearly define the invention. While pH- or potential-dependent fluorophores are well known, as are methods for binding these and other fluorophores to surfaces, such fluorophore-incorporated surfaces have never been used for the purposes of the present invention, that is, to indicate binding of a test species to a surface. The particular polymer surface is not critical to the method of the present invention. The only criteria for the polymer are that a species binds to or dissociates from the polymer, and the polymer can be covalently bound to a fluorophore. Support for claim 43 can be found in the specification as filed at page 2, lines 30-31.

As stated in the declaration of Professor Yechezkel Barenholz submitted herewith, procedures for fluorescence labeling of polymers were well known in the art at the time of the invention. Examples of these procedures are given in the Barenholz declaration submitted herewith. Additionally, a

great number of fluorphores which are pH- or potential-sensitive were available at the time the present application was filed. Exhibit D attached to the Barenholz declaration includes a table of contents and some exemplary pages from a handbook of fluorescent probes published in 1996. These pages show the availability of these fluorescent probes and their applicability as biopolymer markers.

One skilled in the art, knowing the state of the art at the time the application was filed, and reading the present application, could successfully, with a minimum of experimentation, performed the present invention. The underlying concept of the method of the present invention is that as long as a probe is stably incorporated (*e.g.*, by anchoring, covalent linkage, etc.) into or onto a surface (the surface having a local environment at a give pH or surface potential), any change in the pH or potential of the surface can be detected by a change in the observable property of the probe.

Claims 35-42 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventors, at the

time the application was filed, had possession of the claimed invention.

This rejection is respectfully traversed. As shown by the Barenholz declaration and Exhibit D, submitted herewith, a variety of fluorescent probes were available at the time the present invention was filed, and it was know that these probes could be used as biopolymer markers. One skilled in the art, at the time the present application was filed, would be able to choose a fluorescent probe and covalently couple it to a polymer to be used for species detection according to the presently claimed method.

The present inventors have discovered a method to test for binding of a species at a surface having a given pH or surface potential, where the binding of the species alters the surface pH or potential. This binding or unbinding of the species can be detected by a fluorophore that is sensitive to pH or potential changes in the environment of the surface. The fluorophore is coupled to the surface, such as a polymer surface, by covalent bonding or other suitable method. As disclosed in the specification as filed at page 1, lines 9-11, the method detects changes in the environment of the probe, which changes are not necessarily dependent upon interactions of the probe with a specific molecule. Thus, the method

requires a fluorophore that is pH- or potential-sensitive and that can be coupled to a surface to which a species may be bound. Because the fluorophore does not necessarily interact with the species, but is only sensitive to pH and potential changes in the environment of the probe, the fluorophore can be any fluorophore which can be bound to a surface and which is pH or potential sensitive.

It is respectfully submitted that the examples given in the specification are sufficient to teach one skilled in the art how to use the present method for identifying a species that can change the pH or environment at a polymer surface. Once it is known that fluorphores are available to detect pH or potential changes, and that these fluorophores can be covalently coupled or otherwise stably joined to a polymer, one skilled in the art can readily practice the present invention without undue experimentation. Therefore, it is respectfully submitted that the present inventors had possession of the invention at the time of filing the subject application.

Claim 41 is rejected as containing new matter. This rejection is moot, as the present amendment cancels claim 41.

In view of the above, it is respectfully submitted that the claims are now in condition for allowance, and favorable action thereon is earnestly solicited.

Respectfully submitted,

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